

## REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claims 1-15 have been cancelled in favor of new claims 16-20. Support for the amendments is provided for example in Figs. 5A, 5B, and 8 and embodiment 1 of the invention disclosed in the specification. (References herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

Claims 1-3, 13, and 15 were rejected, under 35 USC §103(a), as being unpatentable over Atarashi et al. (US 2003/0214927) in view of Wu et al. (US 2004/0125772) and Shapira (US 2003/0073463). Claims 4-6 were rejected, under 35 USC §103(a), as being unpatentable over Atarashi in view of Wu, Shapira, and Ozeki et al. (US 2005/0078315). Claims 7-12 and 14 were rejected, under 35 USC §103(a), as being unpatentable over Atarashi in view of Wu, Shapira, and well-known prior art. To the extent that these rejections may be deemed applicable to new claims 16-20, the Applicants respectfully traverse based on the points set forth below.

Claim 16 defines a transmitting apparatus that: (1) transmits information of an arrangement of a plurality of time slots each having pilot signals of a unique pilot pattern of a unique arrangement density in a frequency domain or a time domain and (2) transmits, in each time slot, the pilot signals of the unique pilot pattern according to the arrangement of the plurality of time slots. The claimed subject matter provides an advantage of enabling reduction in the amount of feedback information required to indicate the number and position of pilot

signals within a time slot (see specification page 3, line 17, through page 4, line 12, and page 5, lines 4-8).

Fig. 8 illustrates for an exemplary, non-limiting, embodiment of the invention eight unique pilot patterns. For each pattern, the horizontal direction represents the time domain and the vertical direction represents the frequency domain. Thus, patterns 1-3 have one pilot symbol arranged in the frequency domain, patterns 4-6 have three pilot symbols arranged in the frequency domain, and patterns 7 and 8 have pilot symbols continuously arranged in the frequency domain (see specification page 19, line 26, through page 20, line 9). Similarly, patterns 1, 4, and 7 have one pilot symbol arranged in the time domain, patterns 2, 5, and 8 have three pilot symbols arranged in the time domain, and patterns 3 and 6 have pilot symbols continuously arranged in the time domain (see page 20, lines 10-19). Each of the eight patterns may be uniquely identified to a communicating party in a feedback message using a three-bit binary value (see page 21, lines 22-26).

By contrast to the Applicants' claimed subject matter, Atarashi discloses, in Figs. 4 and 5, assigning orthogonal pilot symbols to different subcarriers for simultaneous transmission (see Atarashi paragraph [0079]). Wu discloses determining, for each of a plurality of users, the number of symbols from each user to be allocated to a common communication channel (see Wu paragraph [0037]). Shapira is cited by the Office Action for disclosing a base station that transmits both traffic and pilot signal information over a forward link (see Office Action page 3, fourth paragraph). Ozeki is cited for disclosing a measuring unit that measures delay or dispersion (see page 5, second paragraph). And the Office Action proposes that estimating the moving speed of a wireless device is well-known in the art (see page 6, penultimate paragraph).

However, the combined teachings of the applied references fail to disclose the Applicants' claimed subject matter of: (1) transmitting information of an arrangement of a plurality of time slots each having pilot signals of a unique pilot pattern of a unique arrangement density in a frequency domain or a time domain and (2) transmitting, in each time slot, the pilot signals of the unique pilot pattern according to the arrangement of the plurality of time slots.

Accordingly, the Applicants submit that the teachings of Atarashi, Wu, Shapira, Ozeki and the cited known prior art, considered individually or in combination, do not render obvious the subject matter now defined by claim 16. Independent claims 19 and 20 similarly recite the above-mentioned subject matter distinguishing apparatus claim 16 from the applied references, although claim 19 does so with respect to a method. Therefore, allowance of claims 16, 19, and 20 and all claims dependent therefrom is considered to be warranted.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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